



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/619,560	07/19/2000	Jane C. Cheng	2000	2046

23455 7590 05/14/2003

EXXONMOBIL CHEMICAL COMPANY  
P O BOX 2149  
BAYTOWN, TX 77522-2149

EXAMINER

24  
GRIFFIN, WALTER DEAN

ART UNIT	PAPER NUMBER
----------	--------------

1764

DATE MAILED: 05/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/619,560

Applicant(s)

CHENG ET AL.

Examiner

Walter D. Griffin

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-14 and 16-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-14 and 16-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 3-14, and 16-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. The limitation added to the claims regarding the effective percentage of the molecular sieves was not described in the specification at the time the application was filed. It is unclear how Table 1 provides support for this limitation.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

Art Unit: 1764

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3-14, and 16-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaufman (3,385,906) in view of Cheng et al. (5,557,024).

The Kaufman reference teaches a process for producing cumene by alkylation followed by transalkylation of diisopropyl benzene. Specifically, the Kaufman reference teaches the reaction of benzene with propylene in the presence of an alkylation catalyst to produce cumene. See column 5, lines 41-43. The resulting cumene-containing product is separated to remove a majority of the cumene. The remaining effluent is then combined with benzene and is transalkylated. See 2, lines 15-25. This transalkylation step would necessarily produce by-products as claimed. The Kaufman reference teaches Zeolite Y as a preferred molecular sieve for use in preparing transalkylation catalysts. See column 3, lines 49-50. The Kaufman reference also teaches the liquid phase conditions referred to in claim 11 through the language in column 6 lines 25-26 referring to "benzene and liquefied propylene" and through the conditions referred to in column 5, lines 4-15. Kaufman teaches temperature conditions ranging from 130°C to 250°C, and pressure conditions ranging from 75 psig to about 450 psig (5.2 – 31 Bar) with conditions preferably at 95 psig to 145 psig to maintain the liquid phase. See column 5 lines 4-20.

Art Unit: 1764

The Kaufman reference does not disclose the mixture of two different molecular sieves and does not disclose a process whereby the transalkylation catalyst is produced by co-extrusion as described in claim 6. Kaufman also does not teach a weight percentage of the transalkylation catalyst as it relates to the crystalline sieves as in claims 5 and 18. Kaufman also does not teach the alkylation catalyst of claim 14.

The Cheng reference teaches the use of MCM-49, MCM-22, zeolite Y, zeolite beta, and mordenite as transalkylation catalysts. See col. 14, lines 27-30. It also teaches the use of MCM-56 as an alkylation catalyst as in claim 14. See column 1. Furthermore, the reference uses TEA mordenite as a transalkylation catalyst as in claim 4. See column 14, lines 34-39. The Cheng reference teaches forming a catalyst by extrusion. See Examples 11 and 12, column 21.

It would have been obvious to one having ordinary skill in the art at the time of the invention to have modified the process of Kaufman by utilizing a combination of catalysts as claimed because Cheng discloses that each of these substances is individually used as transalkylation catalysts. Therefore, the use of a combination of them including the claimed combination, in any weight percent including those claimed, to serve as a transalkylation catalyst would be expected to result in effective transalkylation. In re Kerkhoven, 626 F.2d 846, 850 (CCPA 1980).

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Kaufman by co-extruding the catalyst because Cheng discloses extrusion as a common method for production of a catalyst. Therefore, co-extrusion of two or more zeolites would be expected to produce a catalyst.

Art Unit: 1764

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Kaufman by utilizing MCM-56 alkylation catalyst as disclosed by Cheng because MCM- 56 has high activity and selectivity for the desired alkylated product.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized TEA-mordenite having a crystal size as claimed because it is an effective transalkylation catalyst as disclosed by Cheng and any crystal size that results in effective contact between the feed and catalyst would be expected to function effectively in the process.

### *Response to Arguments*

The argument that the claimed process produces unexpected results is not persuasive because the data relied upon to illustrate these results as shown in the Rule 132 declaration of Cheng is not commensurate in scope with the claimed process. The claimed process is not limited to the specific ratios of the catalysts as described in the declaration.

The argument that the present claims are restricted to effective percentages of the first and second molecular sieves and are commensurate in scope with the subject matter shown to provide unexpected results is not persuasive. The presence of claims 23 and 24 shows that the amount of the second molecular sieve in claims 1 and 10 ranges from 15 to 50 percent. The examples in the specification provide data for specific combinations of molecular sieves in specific amounts. The claims are clearly not limited to these specific combinations and specific amounts as evidenced by the limitations in claims 23 and 24.

Art Unit: 1764

*Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

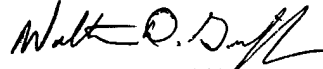
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter D. Griffin whose telephone number is 703-305-3774. The examiner can normally be reached on Monday-Friday 6:30 to 4:00 with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Art Unit: 1764

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.



Walter D. Griffin  
Primary Examiner  
Art Unit 1764

WG

May 12, 2003